
U.S. Department of the Interior • U.S. Geological Survey

MINERAL INDUSTRY SURVEYS

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CHROMIUM IN NOVEMBER 1996

Chromite consumption decreased by 10% in November 1996 compared with the previous month's revised data, according to the U.S. Geological Survey. Net production of chromium ferroalloys and metal in November increased 10% compared with data for October, and consumption of chromium ferroalloys and metal in November decreased 24% compared with revised data for October. Chromite stocks increased 10% over the same period. At the November rate of consumption, chromium stocks represented 11 months of domestic supply. Chromium ferroalloys and metals stocks increased 4% compared with

revised data for October. At the November rate of consumption, chromium ferroalloys and metal stocks represented 1.1 months of domestic supply.

Included in this Mineral Industry Surveys are: U.S. consumption and stocks of chromite; U.S. net production, net shipments, and stocks of chromium materials; U.S. consumption by end use and consumer stocks of chromium ferroalloys and metal for November; U.S. Government inventory; and foreign trade for October.

TABLE 1
U.S. SALIENT CHROMIUM STATISTICS 1/

(Metric tons, gross weight unless otherwise noted)

	1995	1996				
	Year total	Aug.	Sept.	Oct.	Nov.	Jan. - Nov.
Production:						
Chromium ferroalloys and metal: 2/						
Net production:						
Gross weight	72,500	1,180	793	430	475	35,900
Chromium content	49,500	904	572	412	406	25,500
Net shipments	72,100	1,800	(45)	1,640	475	38,100
Stainless steel production 3/	2,030,000	(4/)	(4/)	NA	NA	1,020,000 5/
Components of U.S. supply:						
Stainless steel scrap receipts	663,000	38,300	42,200	51,400 r/	47,600	536,000
Imports for consumption						
Chromite ore	253,000	48,100	36,600	19,600	NA	220,000 6/
Chromium ferroalloys 7/	495,000	38,900	24,000	33,200	NA	388,000 6/
Chromium metals 8/	7,040	606	700	758	NA	7,340 6/
Stainless steel	NA	NA	NA	NA	NA	NA
Stainless steel scrap	43	4	5	5	NA	43 6/
Distribution of U.S. supply:						
Consumption:						
Chromite ore	356,000 9/	18,300	14,300	19,100 r/	17,200	262,000
Chromium ferroalloys & metals	283,000	19,500 r/	20,000	30,900 r/	23,500	262,000
Exports:						
Chromite ore	17,800	1,060	614	1,310	NA	66,900 6/
Chromium ferroalloys	9,360	676	955	1,100	NA	8,180 6/
Chromium metals	714	63	137	97	NA	1,150 6/
Stainless steel	NA	NA	NA	NA	NA	NA
Stainless steel scrap	368	29	30	30	NA	257 6/
Stocks at end of period:						
Industry:						
Chromite ore:						
Chemical and metallurgical	194,000	174,000	183,000	167,000 r/	184,000	XX
Refractory	10,900	8,100	8,010	7,520 r/	7,780	XX
Total	205,000	182,000	191,000	175,000 r/	192,000	XX
Chromium ferroalloys and metal:						
Producer	8,430	6,620	7,460	6,250	6,250	XX
Consumer	10,700	16,200	13,800 r/	18,700 r/	19,500	XX
Government stockpile:						
Chromite ore	1,320,000	1,200,000	1,190,000	1,190,000	1,190,000	XX
Chromium ferroalloys	1,070,000	1,070,000	1,070,000	1,070,000	1,060,000	XX
Chromium metals	7,690	7,690	7,720	7,720	7,720	XX

r/ Revised. NA Not available. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes low- and high-carbon ferrochromium, chromium concentrates, ferrochromium, chromium metal, and other miscellaneous alloys.

3/ Data on stainless steel production from American Iron and Steel Institute, quarterly production of stainless and heat resisting raw steel.

4/ Not reported monthly.

5/ Includes data for January through September; October and November not available at time of publication.

6/ Includes data for January through October; November not available at time of publication.

7/ Includes high-, medium-, and low- ferrochromium and ferrochromium silicon.

8/ Includes waste and scrap and other.

9/ Includes withheld data for February through December.

TABLE 2
U.S. CONSUMPTION, BY END USE, AND CONSUMER STOCKS OF
CHROMIUM FERROALLOYS AND METAL IN NOVEMBER 1996 1/

(Metric tons, gross weight unless otherwise noted)

End use	Ferrochromium			Other	Total	Jan. through Nov. total 2/
	Low- carbon	Medium- and high- carbon	Ferro- chromium silicon			
Steel:						
Carbon	320	267	W	2	589	6,930
Stainless and heat resisting	510	16,400	1,960	W	18,800	186,000
Full alloy	328	1,650	W	4	1,980	24,300
High-strength low-alloy and electric	76	W	W	--	76	8,320
Tool	W	462	W	W	462	3,400
Cast irons	W	173	W	W	173	1,070
Superalloys	181	436	--	236	854	8,650
Alloys:						
Welding materials 3/	--	2	--	2	4	32
Other alloys 4/	24	W	--	50	73	702
Miscellaneous and unspecified	243	199	(5/)	(5/)	442	22,900
Total: 6/ gross weight	1,680	19,600	1,960	293 7/	23,500	XX
Chromium content	1,140	11,900	705	272	14,000	XX
Stocks, Nov. 30, 1996	1,450	16,500	1,330	215 8/	19,500	XX
Jan. through Nov.: 2/						
Total	18,600	197,000	42,300	3,930 9/	XX	262,000
Chromium content	12,300	116,000	14,900	3,520	XX	147,000

W Withheld to avoid disclosing company proprietary data; included in "Miscellaneous and unspecified." XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes revised data from previous months.

3/ Includes structural and hard-facing materials.

4/ Includes cutting materials and magnetic, aluminum, copper, nickel, and other alloys.

5/ Withheld to avoid disclosing company proprietary data.

6/ Includes estimates.

7/ Includes 247 tons of chromium metal.

8/ Includes 174 tons of chromium metal.

9/ Includes 3,110 tons of chromium metal.

TABLE 3
U.S. GOVERNMENT STOCKPILE INVENTORY 1/ OF CHROMIUM MATERIALS 2/

(Metric tons)

Period	Chromite ore			Chromium ferroalloys			Chromium metal	
	Chemical	Metal- lurgical	Refractory	High-carbon ferro- chromium	Low-carbon ferro- chromium	Ferro- chromium silicon	Alumino- thermic	Electrolytic
1995:								
November	220,000	792,000	333,000	738,000	283,000	52,900	2,670	5,020
December	220,000	773,000	328,000	738,000	283,000	52,900	2,670	5,020
1996:								
January	220,000	750,000	328,000	738,000	283,000	52,900	2,670	5,020
February	220,000	739,000	328,000	738,000	283,000	52,900	2,670	5,020
March	220,000	722,000	328,000	738,000	283,000	52,900	2,670	5,020
April	220,000	717,000	328,000	738,000	283,000	52,900	2,670	5,020
May	220,000	694,000	328,000	738,000	283,000	52,900	2,670	5,020
June	220,000	658,000	327,000	738,000	283,000	52,900	2,670	5,020
July	220,000	655,000	322,000	738,000	283,000	52,900	2,670	5,020
August	220,000	655,000	322,000	738,000	283,000	52,900	2,670	5,020
September	220,000	647,000	322,000	734,000	283,000	52,700	2,670	5,050
October	220,000	645,000	322,000	732,000	283,000	52,700	2,670	5,050
November	220,000	645,000	322,000	725,000	283,000	52,700	2,670	5,050

1/ Includes specification and non-specification grade materials and materials set aside for disposal but not yet shipped.

2/ Data are rounded to three significant digits.

TABLE 4
U.S. EXPORTS OF CHROMITE ORE, CHROMIUM FERROALLOYS AND METAL 1/

Period	Chromite ore		Chromium ferroalloys 2/			Chromium metal 3/	
	Gross weight (metric tons)	Value (thousands)	Gross weight (metric tons)	Chromium content (metric tons)	Value (thousands)	Gross weight (metric tons)	Value (thousands)
1995:							
October	1,140	\$228	923	560	\$1,270	42	\$616
November	1,330	425	591	353	855	48	424
December	1,420	205	528	289	639	157	1,520
Jan. - Dec.	17,800	3,430	9,360	5,540	12,500	714	7,820
1996:							
January	1,740	427	885	519	1,120	86	1,000
February	1,700	407	887	536	1,230	44	618
March	1,840	484	669	399	894	124	1,450
April	17,100	2,280	734	444	843	165	1,530
May	1,730	1,160	472	288	597	76	863
June	37,900	4,270	490	291	583	143	1,110
July	1,920	568	1,320	797	1,640	214	1,820
August	1,060	564	676	411	694	63	717
September	614	132	955	554	912	137	772
October	1,310	152	1,100	680	956	97	1,010
Total	66,900	10,400	8,180	4,920	9,470	1,150	10,900

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes low-, medium-, and high-carbon ferrochromium, and ferrochromium-silicon.

3/ Includes wrought and unwrought and waste and scrap.

Source: Bureau of the Census.

TABLE 5
U.S. IMPORTS FOR CONSUMPTION OF CHROMITE ORE,
FERROCHROMIUM, AND CHROMIUM METAL 1/

(Metric tons)

	1995	1996			
	Jan. - Dec.	August	September	October	Jan. - Oct.
Chromite ore:					
Not more than 40% chromic oxide:					
Gross weight	11,600	--	--	--	8,030
Chromic oxide content	4,120	--	--	--	2,650
More than 40% but less than 46% chromic oxide:					
Gross weight	14,800	--	--	--	19,600
Chromic oxide content	6,110	--	--	--	8,420
46% or more chromic oxide:					
Gross weight	226,000	43,100	36,600	19,600	184,000
Chromic oxide content	109,000	19,900	17,100	10,100	86,500
Total, all grades:					
Gross weight	253,000	43,100	36,600	19,600	211,000
Chromic oxide content	119,000	19,900	17,100	10,100	97,600
Ferrochromium:					
Low-carbon: 2/					
Gross weight	65,800	4,880	2,920	4,180	55,100
Chromium content	42,800	3,230	1,930	2,770	34,600
Medium-carbon: 3/					
Gross weight	7,570	--	--	--	36
Chromium content	4,930	--	--	--	23
High-carbon: 4/					
Gross weight	422,000	34,000	21,100	29,000	333,000
Chromium content	254,000	18,100	12,800	16,800	193,000
Total, all grades					
Gross weight	495,000	38,900	24,000	33,200	388,000
Chromium content	301,000	21,400	14,700	19,600	227,000
Chromium metal:					
Other than waste and scrap	6,930	606	696	758	7,300
Waste and scrap	109	--	3	--	38
Total, all grades	7,040	606	700	758	7,340

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Ferrochromium containing not more than 3% carbon.

3/ Ferrochromium containing more than 3% carbon but not more than 4% carbon.

4/ Ferrochromium containing more than 4% carbon.

Source: Bureau of the Census.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF CHROMITE ORE IN OCTOBER 1996,
BY GRADE AND BY COUNTRY 1/

Country	October			January - October 2/		
	Gross weight (metric tons)	Cr ₂ O ₃ (metric tons)	Value 3/ (thousands)	Gross weight (metric tons)	Cr ₂ O ₃ (metric tons)	Value 3/ (thousands)
Not more than 40% chromic oxide:						
Canada	--	--	--	20	8	\$3
Philippines	--	--	--	7,940	2,620	1,060
Venezuela	--	--	--	46	18	16
Zimbabwe	--	--	--	23	9	3
Total	--	--	--	8,030	2,650	1,080
More than 40% but less than 46% chromic oxide:						
South Africa	--	--	--	19,600	8,420	1,970
46% or more chromic oxide:						
South Africa	19,600	10,100	\$2,030	184,000	86,500	16,700
Total, all grades:						
Canada	--	--	--	20	8	3
Philippines	--	--	--	7,940	2,620	1,060
South Africa	19,600	10,100	2,030	203,000	94,900	18,700
Venezuela	--	--	--	46	18	16
Zimbabwe	--	--	--	23	9	3
Total	19,600	10,100	2,030	211,000	97,600	19,800

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes revised data from previous months.

3/ Customs import value generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance and other charges incurred in bringing the merchandise to the United States.

Source: Bureau of the Census.

TABLE 7
U.S. IMPORTS FOR CONSUMPTION OF FERROCHROMIUM IN OCTOBER 1996,
BY GRADE AND BY COUNTRY 1/

Country	October			January - October		
	Gross weight (metric tons)	Chromium content (metric tons)	Value 2/ (thousands)	Gross weight (metric tons)	Chromium content (metric tons)	Value 2/ (thousands)
High - carbon ferrochromium: 3/						
Albania	--	--	--	8,170	4,730	\$5,170
China	--	--	--	9,860	6,280	6,540
Croatia	--	--	--	9,430	5,880	6,110
Estonia	--	--	--	8,310	5,400	5,360
Finland	--	--	--	9,020	4,790	4,820
Germany	--	--	--	19	14	38
India	--	--	--	6,150	3,810	3,860
Japan	--	--	--	18	12	25
Kazakstan	--	--	--	77,600	46,800	45,600
Russia	3,990	1,820	\$2,910	21,500	11,200	16,100
South Africa	5,600	2,850	1,700	88,900	45,200	39,100
Turkey	4,170	2,580	1,860	43,700	27,100	27,300
United Kingdom	--	--	--	496	312	392
Zimbabwe	15,300	9,530	8,070	49,500	31,200	30,700
Total	29,000	16,800	14,500	333,000	193,000	191,000
Medium - carbon ferrochromium: 4/						
Philippines	--	--	--	36	23	47
Low - carbon ferrochromium: 5/						
China	36	24	56	8,090	5,310	12,400
Croatia	--	--	--	20	13	17
France	--	--	--	141	98	294
Germany	909	636	2,100	7,670	5,340	17,600
India	--	--	--	970	669	1,680
Japan	50	36	127	322	226	814
Kazakstan	--	--	--	152	106	257
Russia	2,770	1,810	4,470	15,900	10,400	24,100
South Africa	422	260	655	17,900	9,940	15,200
Turkey	--	--	--	902	652	1,890
United Kingdom	--	--	--	236	147	440
Zimbabwe	--	--	--	2,740	1,670	2,850
Total	4,180	2,770	7,400	55,100	34,600	77,600
Total, all grades:						
Albania	--	--	--	8,170	4,730	5,170
China	36	24	56	18,000	11,600	19,000
Croatia	--	--	--	9,450	5,900	6,130
Estonia	--	--	--	8,310	5,400	5,360
Finland	--	--	--	9,020	4,790	4,820
France	--	--	--	141	98	294
Germany	909	636	2,100	7,690	5,360	17,600
India	--	--	--	7,120	4,480	5,550
Japan	50	36	127	340	237	838
Kazakstan	--	--	--	77,700	46,900	45,800
Philippines	--	--	--	36	23	47
Russia	6,750	3,630	7,380	37,500	21,600	40,200
South Africa	6,020	3,110	2,350	107,000	55,100	54,300
Turkey	4,170	2,580	1,860	44,600	27,800	29,200
United Kingdom	--	--	--	733	459	832
Zimbabwe	15,300	9,530	8,070	52,200	32,900	33,600
Total	33,200	19,600	21,900	388,000	227,000	269,000

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Customs import value generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance and other charges incurred in bringing the merchandise to the United States.

3/ Ferrochromium containing more than 4% carbon.

4/ Ferrochromium containing more than 3% but not more than 4% carbon.

5/ Ferrochromium containing not more than 3% carbon.

Source: Bureau of the Census.

TABLE 8
U.S. IMPORTS FOR CONSUMPTION OF CHROMIUM METAL IN
OCTOBER 1996, BY GRADE AND BY COUNTRY 1/

Country	October		January - October	
	Gross weight (metric tons)	Value 2/ (thousands)	Gross weight (metric tons)	Value 2/ (thousands)
Waste and scrap:				
Canada	--	--	5	\$14
China	--	--	17	103
Russia	--	--	(3/)	2
Sweden	--	--	16	69
Total	--	--	38	189
Other than waste and scrap:				
Australia	--	--	(3/)	2
Canada	1	\$4	1	4
China	103	590	1,290	7,410
France	112	921	1,260	9,880
Germany	33	293	217	2,080
Hong Kong	--	--	52	284
India	--	--	(3/)	11
Italy	(3/)	4	(3/)	4
Japan	24	437	252	4,830
Korea, Republic of	--	--	2	8
Luxembourg	76	454	76	454
Netherlands	--	--	(3/)	2
Portugal	--	--	2	106
Russia	285	1,550	3,060	17,800
Spain	(3/)	3	1	38
Sweden	(3/)	2	(3/)	2
Switzerland	(3/)	2	4	18
Taiwan	1	11	8	103
United Kingdom	122	952	1,080	8,630
Total	758	5,220	7,300	51,600
Total, all grades:				
Australia	--	--	(3/)	2
Canada	1	4	6	19
China	103	590	1,310	7,520
France	112	921	1,260	9,880
Germany	33	293	217	2,080
Hong Kong	--	--	52	284
India	--	--	(3/)	11
Italy	(3/)	4	(3/)	4
Japan	24	437	252	4,830
Korea, Republic of	--	--	2	8
Luxembourg	76	454	76	454
Netherlands	--	--	(3/)	2
Portugal	--	--	2	106
Russia	285	1,550	3,060	17,800
Spain	(3/)	3	1	38
Sweden	(3/)	2	16	71
Switzerland	(3/)	2	4	18
Taiwan	1	11	8	103
United Kingdom	122	952	1,080	8,630
Total	758	5,220	7,340	51,800

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Customs import value generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance and other charges incurred in bringing the merchandise into the United States.

3/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 9
PRINCIPAL WORLD FERROCHROMIUM PRODUCERS, 1995

Country 1/	Company
Albania	Albchrome Ltd. (Government owned).
Brazil	Cia. de Ferro-Ligas da Bahia S.A.
China	Chongqing Ferroalloy Works (Government owned). Emei Ferroalloy Works (Government owned). Hanzhong Ferroalloy Works (Government owned). Hengshan Iron and Steel Works (Government owned). Hunan Ferroalloy Works Government owned). Jiangyin Ferroalloy Factory (Government owned). Jilin Ferroalloy Works (Government owned). Jinzhou Ferroalloy Works (Government owned). Liaoyang Ferroalloy Works (Government owned). Nanjing Ferroalloy Plant (Government owned). Shanghai Ferroalloy Works (Government owned). Xibei Ferroalloy Works (Government owned).
Croatia	Dalmacija Ferro-Alloys Works.
Finland	Outokumpu Chrome Oy (Government owned).
Germany	Elektrowerk Weisweiler GmbH.
India	Deepak Ferro-Alloys Ltd. Eastern Metals & Ferro-Alloys Ltd. Ferro Alloys Corp. Ltd. Charge Chrome Works. Ferroalloys Works. GMR Vasavi Industries Ltd. Hi-Tech Electrothermics (Pvt.) Ltd. Indian Metals & Ferro Alloys Ltd. Indian Charge Chrome Ltd. Industrial Development Corp. Ispat Alloys Ltd. Jindal Ferro Alloys Ltd. Mandsaur Ferro Alloys Ltd. Monnet Industries Ltd. Nav Chrome Ltd. Nava Bharat Ferro Alloys Ltd. Standard Chrome Ltd. Tata Iron and Steel Co. Ltd. Bamnipal Plant. Joda Plant. VBC Ferro-Alloys Ltd. Visvesvaraya Iron & Steel Ltd. (State owned). V.K. Ferroalloys (Pvt.) Ltd.
Italy	Acciaierie e Ferriere Lombarde Falck SpA. Darfo s.r.l. Ferroleghie SpA.
Japan	Japan Metals and Chemicals Co. Ltd. Nippon Denko Co. Ltd. NKK Corp. Pacific Metals Co. Ltd. Showa Denko K.K.
Kazakstan	Aktubinsk Ferroalloy Works. Yermakovsky Ferroalloy Plant.
Norway	Elkem A/S.
Philippines	Ferrochrome Philippines Inc. Integrated Chrome Corp. Philippine Mineral & Alloy Corp.
Poland	Huta "Laziska" Ferroalloy Plant.
Romania	S.C. Ferom S.A.
Russia	Chelyabinsk Electrometallurgical Works. Klutchevsk Ferroalloy Plant. Serovsk Ferroalloy Works.
Slovakia	Oravske Ferozliatinarske Zavody.
Slovenia	Tovarna Dusika Ruse-Metalurgija d.o.o.

See footnotes at end of table.

TABLE 9 - Continued
 PRINCIPAL WORLD FERROCHROMIUM PRODUCERS, 1995

Country 1/	Company
South Africa	Assoc. Manganese Mines of South Africa Ltd. Feralloys Ltd. Chromecorp Holdings Ltd. Chrome Resources (Pty.) Ltd. Ferrochrome Division. Johannesburg Consolidated Investment Co. Ltd. Consolidated Metallurgical Industries Ltd. Lydenburg Works. Rustenburg Works. Purity Ferrochrome (Pty.) Ltd. Samancor Ltd. Batlhako Ferrochrome Ltd. Ferrometals Division. Middelburg Ferrochrome Division. Palmiet Ferrochrome Division. Tubatse Ferrochrome Division.
Sweden	Vargön Alloy AB.
Turkey	Etibank General Management (Government owned).
United States	Elkem Metals Co. Macalloy Corp.
Zimbabwe	Zimbabwe Alloys Ltd. Zimasco (Pvt.) Ltd.

1/ Other ferrochromium-producing countries include Chile, Mexico, Spain and Taiwan.